Trend Study 9-21-00

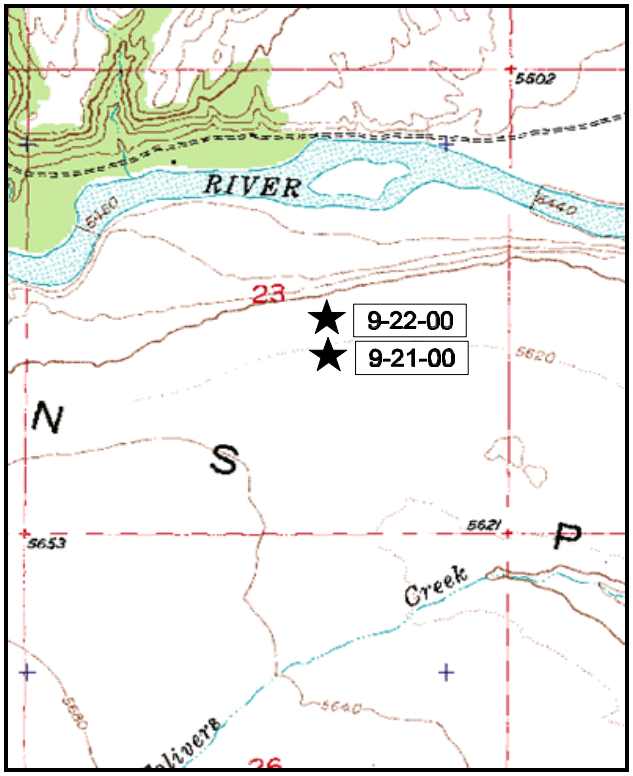
Study site name: Browns Park River Corridor-Cattle . Range type: Big Sagebrush-Grass .

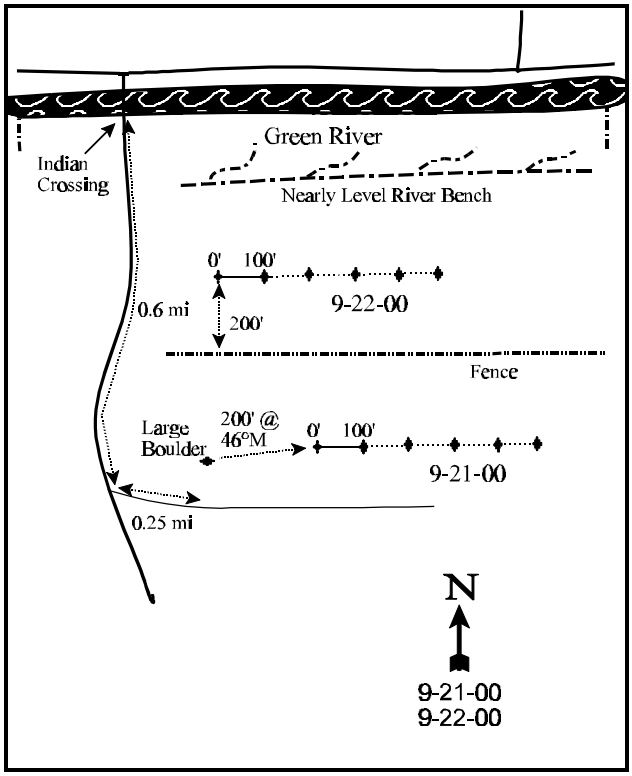
Compass bearing: frequency baseline 69°M .

First frame placement on frequency belts 5 feet. Frequency belt placement; line 1 (11ft), line 2 (34ft), line 3 (59ft), line 4 (71ft), line 5 (95ft).

LOCATION DESCRIPTION

From the Indian Crossing bridge at Browns Park travel south for 0.6 miles to a fork. Turn left onto a small road and proceed 0.25 miles. There is a large boulder on the north side of the road. From the boulder the 0-foot baseline stake is 200 feet away at a bearing of 46°M. The frequency baseline stakes are marked by green fenceposts 12-18 inches in height.





Map Name: Clay Basin

Diagrammatic Sketch

Township 2N , Range 24E ,Section 23

UTM 4528354.839 N, 654031.942 E

DISCUSSION

Trend Study No. 9-21

The Brown's Park River Corridor-Livestock study is a new study established in 2000. This study was placed to monitor differences between livestock and wildlife use on two sides of a fence line that was built in 1963. The fence was built to exclude cattle grazing on one side of the fence line while allowing grazing on the other side. Wildlife are not excluded from either side of the fence line. The area is approximately ½ mile south of the Green River at Brown's Park on a sagebrush-grass flat. This study samples the south side of the fence that is accessible to livestock. The site is nearly flat, but has a slight slope of 1-2%, and aspect is to the north. Elevation is 5,600 feet. Cattle did not graze the site in 2000. Pellet group transect data taken along the baseline estimate 31 deer days use/acre (76 ddu/ha), with no elk pellets being sampled. The cattle pats sampled in the quadrats were from the previous year and thus were not counted in the pellet transect in 2000.

Soils on the site are sandy loam in texture and moderately deep with an estimated effective rooting depth of nearly 14 inches. The effective rooting depth was estimated closer to shrubs as the interspaces were much more shallow (8 inches). Moderate pedestaling around shrub stems is common over the site. Shrub interspaces between sagebrush contain a lot of bare soil and pavement. Bare ground is estimated to cover 54% of the ground surface, while pavement is estimated at 31%. Litter is very low at 12%. Vegetation cover is moderately low at 26%, and most of this is aerial cover provided by Wyoming big sagebrush. With very little build-up of litter and so much bare soil, erosion would be much higher if not for the nearly level terrain. Phosphorus is low at 4.1 ppm as values less than 10 ppm may be limiting to normal plant growth and development. Soil reactivity is slightly alkaline (pH of 7.8).

Wyoming big sagebrush is the dominant species on the site providing over 52% of the browse cover and 37% of the total vegetative cover. Sagebrush has an estimated density of 3,740 plants/acre. Age class analysis indicates the population to consist of 64% mature, 29% decadent and 7% young plants. Twelve percent of the population shows poor vigor and use is moderate to heavy. Poor vigor and decadency are moderately high and are accentuated by the drought conditions in 2000, as well as intraspecific and interspecific competition. Other Wyoming big sagebrush sites in this unit show elevated rates of decadency and poor vigor due to low precipitation from the fall of 1999 through the summer of 2000. Leader growth is extremely low averaging 1 inch over the site.

Shadscale is also moderately abundant with an estimated population density of 1,720 plants/acre. Decadency is moderately high at 37%. Ten percent of the population shows poor vigor. This depressed condition of shadscale is drought caused and should improve with a return to normal precipitation patterns. Broom snakeweed is the most abundant browse on the site with an estimated density of 39,460 plants/acre which provide over 7% average cover. Mature plants make up 92% of the population and plants are very small statured.

Herbaceous vegetation is not very diverse and is dominated by needle-and-thread grass. This species provides 92% of the herbaceous cover on the site. Only two other perennial species were sampled, squirreltail and sand dropseed, but both are infrequent. Two annual species, cheatgrass and sixweeks fescue, were also sampled in 2000. Although these species do not currently make up a significant portion of the understory, with better precipitation in the future the potential for rapid expansion is there with a high amount of bare soil. Forbs are nearly non-existent with only 2 species being sampled in 2000.

2000 APPARENT TREND ASSESSMENT

Soils appear to be downward and are in poor condition. Bare ground and pavement cover are high, and protective ground cover from herbaceous vegetation and litter are sparse. Currently, erosion is not excessive, but only because of the nearly level slope of the site. Trend for browse also appears down as broom snakeweed occurs at a very high density and Wyoming big sagebrush has high decadency. The herbaceous understory has a poor composition with only needle-and-thread grass being abundant. Forbs are nearly non-existent and will probably never be important at this site.

HERBACEOUS TRENDS --
Herd unit 09 , Study no: 21

Type	Species	Nested Frequency '00	Quadrat Frequency '00	Average Cover % '00
G	Bromus tectorum (a)	11	5	.02
G	Sitanion hystrix	21	12	.18
G	Sporobolus cryptandrus	20	5	.36
G	Stipa comata	300	94	6.61
G	Vulpia octoflora (a)	3	1	.00
Total for Annual Grasses		14	6	0.03
Total for Perennial Grasses		341	111	7.16
Total for Grasses		355	117	7.19
F	Sphaeralcea coccinea	8	3	.01
F	Townsendia incana	7	3	.01
Total for Annual Forbs		0	0	0
Total for Perennial Forbs		15	6	0.03
Total for Forbs		15	6	0.03

BROWSE TRENDS --
Herd unit 09 , Study no: 21

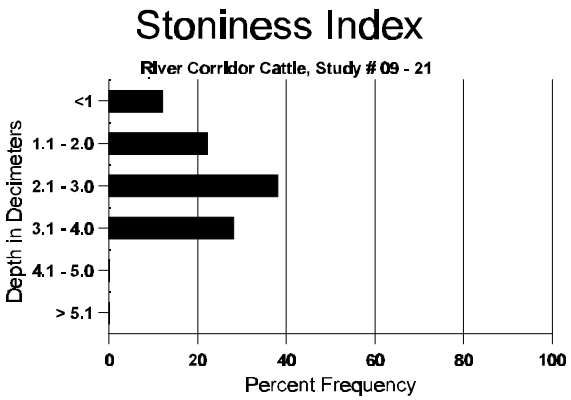
Type	Species	Strip Frequency '00	Average Cover % '00
B	Artemisia tridentata wyomingensis	76	9.28
B	Atriplex confertifolia	56	1.25
B	Gutierrezia sarothrae	99	7.10
B	Opuntia spp.	7	.18
Total for Browse		238	17.84

BASIC COVER --
Herd unit 09 , Study no: 21

Cover Type	Nested Frequency '00	Average Cover % '00
Vegetation	378	25.92
Rock	38	.28
Pavement	456	31.00
Litter	365	12.51
Cryptogams	113	1.50
Bare Ground	450	54.47

SOIL ANALYSIS DATA --
Herd Unit 09, Study # 21, Study Name: River Corridor Cattle

Effective rooting depth (inches)	Temp °F (depth)	pH	%sand	%silt	%clay	%0M	PPM P	PPM K	dS/m
13.87	62 (13.94)	7.8	63.6	18.1	18.2	0.8	4.1	131.2	0.5



PELLET GROUP FREQUENCY --
Herd unit 09 , Study no: 21

Type	Quadncy Frequency '00
Rabbit	5
Deer	28
Cattle	7

Pellet Transect	
Pellet Groups per Acre (ha) '00	Days Use per Acre (ha) '00
96	N/A
400	31 (76)
-	-

BROWSE CHARACTERISTICS --
Herd unit 09 , Study no: 21

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Artemisia tridentata wyomingensis																		
Y	00	13	-	-	-	-	-	-	-	-	13	-	-	-	260			13
M	00	43	65	11	-	-	-	-	-	-	119	-	-	-	2380	11	25	119
D	00	18	30	7	-	-	-	-	-	-	33	-	-	22	1100			55
X	00	-	-	-	-	-	-	-	-	-	-	-	-	-	480			24
% Plants Showing '00				Moderate Use 51%			Heavy Use 10%				Poor Vigor 12%					%Change		
Total Plants/Acre (excluding Dead & Seedlings)													'00		3740	Dec:		29%
Atriplex confertifolia																		
S	00	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
Y	00	5	-	-	-	-	-	-	-	-	5	-	-	-	100			5
M	00	30	2	2	8	6	1	-	-	-	49	-	-	-	980	7	12	49
D	00	31	-	-	1	-	-	-	-	-	23	-	-	9	640			32
X	00	-	-	-	-	-	-	-	-	-	-	-	-	-	60			3
% Plants Showing '00				Moderate Use 09%			Heavy Use 03%				Poor Vigor 10%					%Change		
Total Plants/Acre (excluding Dead & Seedlings)													'00		1720	Dec:		37%
Gutierrezia sarothrae																		
S	00	8	-	-	-	-	-	-	-	-	8	-	-	-	160			8
Y	00	48	-	-	-	-	-	-	-	-	48	-	-	-	960			48
M	00	1821	-	-	-	-	-	-	-	-	1682	-	139	-	36420	4	6	1821
D	00	104	-	-	-	-	-	-	-	-	6	-	24	74	2080			104
X	00	8	-	-	-	-	-	-	-	-	8	-	-	-	1700			85
% Plants Showing '00				Moderate Use 00%			Heavy Use 00%				Poor Vigor 12%					%Change		
Total Plants/Acre (excluding Dead & Seedlings)													'00		39460	Dec:		5%
Opuntia spp.																		
M	00	7	-	-	-	-	-	-	-	-	7	-	-	-	140	3	12	7
D	00	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
% Plants Showing '00				Moderate Use 00%			Heavy Use 00%				Poor Vigor 00%					%Change		
Total Plants/Acre (excluding Dead & Seedlings)													'00		160	Dec:		13%